CLAIMS

What is claimed is:

1   1.   A packet-network analyzer system comprising a host analyzer communicatively

2   coupled to a first client analyzer, wherein the host analyzer incorporates a neural

3   processing module to process raw digital data provided to the host analyzer by the first

4   client analyzer for characterizing a packet-network-under-test that is connected to the

5   first client analyzer.

1   2.   The packet-network analyzer system of claim 1, wherein the host analyzer

2   comprises:

3   a data collection element that receives the raw digital data from the first client

4   analyzer;

5   a data selection element that generates a selected data set from the raw digital

6   data;

7   a data processing element that processes the selected data set to generate a

8   normalized data set;

9   wherein the neural processing module that processes the normalized data set to

10   generate a set of rules and relationships; and

11   a data mining module that uses the set of rules and relationships to generate a

12   mined data set from the selected data set, wherein the mined data set is used to

13   characterize the packet-network-under-test.

1 3. The packet-network analyzer of claim 2, wherein the neural processing module

2 comprises a fast neural classifier that is derived from ART.

1 4. The packet-network analyzer of claim 3, wherein the neural processing module

2 further comprises a rules and relationship extraction module that uses a modified

3 CHAID scheme.

1 5. The packet-network analyzer system of claim 2, wherein the neural processing

2 module processes the normalized data set using ART, and the set of rules and

3 relationships is generated by the neural processing module using a modified CHAID

4 scheme.

1 6. The packet-network analyzer system of claim 5, wherein the first client analyzer

2 uses XML to transport the raw digital data of the packet-network-under-test to the data

3 collection element.

1 7. The packet-network analyzer system of claim 6, wherein the packet-network-

2 under-test is an IP network.

1 8. The packet-network analyzer system of claim 6, wherein the packet-network-

2 under-test is a subnet of the Internet.

1   9.   The packet-network analyzer system of claim 2, wherein the data collection

2   element of the host analyzer comprises a HTTP server using XML to communicatively

3   couple the host analyzer via a packet network to the first client analyzer, and wherein

4   the first client analyzer uses XML to transport the raw digital data of the packet-

5   network-under-test to the host analyzer.

1   10.   The packet-network analyzer system of claim 7, wherein the host analyzer is

2   communicatively coupled to a second client analyzer that is communicatively coupled

3   via a packet network to a third client analyzer, and wherein the third client analyzer

4   uses XML over HTTP to transmit raw digital data to the second client analyzer for

5   characterizing a second packet-network-under-test that is connected to the third client

6   analyzer.

1   11.   A method for analyzing a packet-network-under-test, comprising:

2   receiving raw digital data that is derived from a packet-network-under-test;

3   generating a selected data set from the received raw digital data;

4   generating a normalized data set from the selected data set;

5   processing the normalized data set in a neural network to generate a set of rules

6   and relationships;

7   using the set of rules and relationships for mining the selected data set to

8   generate a mined data set; and

9   using the mined data set to characterize the packet-network-under-test.

1   12.   The method of claim 11, wherein the step of receiving raw digital data

2   incorporates the use of XML over HTTP as a transmission protocol.

1   13.   The method of claim 12, wherein the normalized data set is generated using

2   ART, and the set of rules and relationships is generated using a modified CHAID

3   scheme.

1   14.   The method of claim 13, wherein characterizing the packet-network-under-test

2   comprises generating a performance metric of transmission of data packets through the

3   packet-network-under-test.

1   15.   The method of claim 14, wherein the packet-network-under-test is an IP

2   network.

1   16.   The method of claim 14, wherein the packet-network-under-test is a subnet of

2   the Internet.

1   17.   A packet-network analyzer system stored on a computer-readable medium, the

2   analyzer comprising:

3   logic configured to receive raw digital data that is derived from a packet-

4   network-under-test;

5   logic configured to generate a selected data set from raw digital data of the

6   packet-network-under-test;

7   logic configured to generate a normalized data set from the selected data set;

8   logic configured to process the normalized data set in a neural network to

9   generate a set of rules and relationships;

10   logic configured to use the set of rules and relationships for mining the selected

11   data set to generate a mined data set; and

12   logic configured to use the mined data set to characterize the packet-network-

13   under-test.

1   18.   The analyzer system of claim 17, wherein the logic configured to receive raw

2   digital data incorporates the use of XML over HTTP as a transmission protocol.

1   19.   The analyzer system of claim 18, wherein the logic configured to generate the

2   normalized data set uses ART, and the logic configured to process the normalized data

3   set in the neural network uses a modified CHAID scheme.

1   20.   The analyzer system of claim 19 wherein the logic configured to receive raw

2   digital data incorporates logic to interface to the Internet.

1   21.   A packet-network analyzer system stored on a computer-readable medium, the

2   analyzer comprising:

3   means for receiving raw digital data that is derived from a packet-network-

4   under-test;

5   means for generating a selected data set from raw digital data of the packet-

6   network-under-test;

7   means for generating a normalized data set from the selected data set;

8   means for processing the normalized data set using a neural network to generate

9   a set of rules and relationships;

10   means for using the set of rules and relationships for mining the selected data

11   set to generate a mined data set; and

12   means for using the mined data set to characterize the packet-network-under-

13   test.

1   22.   The analyzer system of claim 17, wherein the means for receiving raw digital

2   data incorporates the use of XML over HTTP as a transmission protocol.

1   23.   The analyzer system of claim 18, wherein the means for generating the

2   normalized data set uses ART, and the means for processing the normalized data set

3   using the neural network uses a modified CHAID scheme.

1   24.   The analyzer system of claim 19 wherein the means for receiving raw digital

2   data incorporates means to interface to the Internet.